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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/585,500	02/17/2009	Kyung-Soo Jin	NEURP001	7672

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EXAMINER	
ANTISKAY, BRIAN MICHAEL	
ART UNIT	PAPER NUMBER
3739	

NOTIFICATION DATE	DELIVERY MODE
07/08/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptocorrespondence@ip-patent.com

Office Action Summary	Application No.	Applicant(s)	
	10/585,500	JIN ET AL.	
	Examiner	Art Unit	
	BRIAN M. ANTISKAY	3739	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 July 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :09/25/2007, 03/06/2009, 07/07/2009, 01/29/2010, 07/19/2010, 12/04/2010.

DETAILED ACTION

Drawings

The drawings are objected to because the second portion of Figure 1 should have some form of labeling. Additionally there is writing in a non-English language in the top right portion of Figure 1, from the specifications the headset was the element probably meant. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Figures 9a and 9b should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action

to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In claim 1, the "having a uniform central internal cross section and an upper fringe protruded from the upper surface" is simply listed in the summary of the specification and is supported by no explanation. The phrase, as best understood by the examiner, will be read as an "area at the edge of the upper portion" for the upper fringe portion, and a uniform cross section all the way through the insertion hole where the active electrode is housed for the uniform internal cross section.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation the "spring" in line 14. There is insufficient antecedent basis for this limitation in the claim.

Claim 2 recites the limitation the "insertion" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 8 recites the term "a spring", with the spring in claim 1 it is unclear whether or not there are two springs or one spring in use.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-2 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silny et al. DE 3025955 (hereinafter Silny) in view of Ober US Patent 4,535,779 (hereinafter Ober).

Regarding claim 1, Silny discloses an active sensor module (Figure 1) comprising a main body having an upper surface with insertion holes formed through the upper surface (Figure 1 and element 1) and an upper fringe protruded from the upper surface (element 7 with element 2); a cap (element 7), interlocked with the insertion hole (Figure 1 element 7); an active electrode inserted into the cap so that the active electrode is slidable relative to the cap (elements 1), the active electrode having a contactable upper surface and a resilient member with a first end contacting the lower part of the active electrode (Figure 1 element 3) installed in the main body and electrically connected to the main body (elements 3, 4 and 8 and machine translation page 1 lines 16-17); and an amplification circuit (element 5), installed in the main body and coupled to a second end of the resilient member (Figure 1), that is capable of receiving and processing a biomedical signal passed through the spring from the active electrode.

Silny is silent on the electrode being dry and the main body being specifically hollow. Silny is also silent on having a uniform central internal cross section because instead of having a single uniform cross section for the insertion hole Silny discloses three uniform areas; a latching protrusion protruded from a lower part of the active electrode that is capable of being latched onto a lower end of the cap.

Ober teaches a transcutaneous electrode which is placed in contact with the skin for obtaining electrical biosignals and includes a main hollow body (Figure 4 element 54) with a single uniform central internal cross section (Figure 4 element 54) with a slidable active electrode (elements 48 and 58), which has a latching protrusion being protruded from a lower part of the active electrode (Figure 4 the base portion of element 58, which houses the active electrode); additionally teaching a cap which is interlocked with the insertion hole (upper portion of 44).

It would have been obvious to the skilled artisan at the time of invention to combine the active dry electrode features of Ober, as described above, with the electrode sensor features of Silny in order to create an electrode that does not require any gel for increased patient comfort, a single uniformly central hollow cavity to only allow for one single active electrode with an increased surface area, and a latching portion which can act as a mechanical stopper or failsafe from over-extending the active electrode towards the patient.

Regarding claim 2, Silny discloses an active dry sensor module wherein a holder (Figure 1 element 6) is fixedly inserted into the insertion wherein the cap is inserted into the holder. Silny teaches an element which serves the same purpose as the holder described in the application.

Regarding claim 8, Silny discloses an active dry sensor module wherein the resilient member further comprises a spring (Figure 1 element 3). Ober additionally teaches the resilient member to be a spring (Figure 4 element 50).

Regarding claim 9, Silny discloses an active dry sensor module wherein the resilient member biases the active electrode against a surface of a user that is using the active dry sensor module (Figure 1 element 3). Ober additionally teaches that the resilient member biases the active electrode against the surface of the user (Figure 4 element 50).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Silny in view of Ober and in further view of Smith et al. US Patent 4,202,354 (hereinafter Smith).

Regarding claim 4, Silny as modified by Ober discloses an active dry sensor module with an amplification circuit as mentioned above but is silent on the specifics of the amplifier. Smith teaches the use of an instrumentation amplifier for amplifying the biomedical signal (column 1 lines 7-15) and adjusting a common mode rejection ratio (abstract) and a pass band to generate an output signal (column 1 lines 21-27); a band-pass filter for filtering the output signal (column 1 lines 21-27); and a notch filter for eliminating a noise component contained in the output signal (column 7 lines 62-68). It would have been obvious to the skilled artisan at the time of invention to incorporate an instrumentation amplifier with a notch and band-pass filter with the active dry sensor module which has an amplifier in order to properly filter out any undesirable signals such as muscle artifacts, tremors of other galvanic current.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Silny in view of Ober and in further view of Funderburk et al. US Publication 2008/0004512 (hereinafter Funderburk).

Regarding claim 5, Silny as modified by Ober discloses an active dry sensor module wherein the active electrode is plated with silver (machine translated document page 1 lines 15-16) but is silent on the spring being plated with gold or silver. Funderburk discloses a sensor inserter assembly which monitors various physiological signals and utilizes gold plated springs ([0118]) designed to bias the electrode towards the skin of the patient. The springs are not solely gold plated but a gold plated beryllium copper which is well known to have higher conductivity than just gold and is comparable to silver. It would have been obvious to the skilled artisan at the time of invention to utilize gold or silver plated springs as taught by Funderburk with the dry sensor module of Silny to increase conductivity and lower resistivity in order to produce better results.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Silny in view of Ober and in further view of Lundback et al. US Patent 4,646,747 (hereinafter Lundback).

Regarding claim 6, Silny as modified by Ober discloses an active dry sensor module but is silent on the active electrode having a curved upper surface capable of contacting a skin surface. Lundback teaches the use of an electrode for ECG examinations designed to attach to the skin by means of a curved upper surface on the active electrode (Figures 1 and 3 elements 1). It would have been obvious to the skilled artisan at the time of invention to utilize a curved smooth surfaced contact as taught by Lundback with the electrode device of Silny in order to create good contact with the skin of the user.

Claims 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silny in view of Ober and in further view of Sherwin US Patent 4,709,702 (hereinafter Sherwin).

Regarding claim 3, Silny as modified by Ober discloses an active dry sensor module but is silent on there being a headset inserted between the cap and the holder. Sherwin teaches the use of an EEG cap which is placed on a human head containing electrodes that use spring force to attach to the skin and more specifically include a headset (Figure 2 and 4 element 20) which is designed to hold the electrode assembly in place during use and so that the main body can be attached and detached from the headset (column 4 lines 23-26 and Figure 2). It would have been obvious to the skilled artisan at the time of invention to utilize a headset as taught by Sherwin with the active dry sensor module of Silny in order to stabilize the active dry electrode during use.

Regarding claim 7, Silny as modified by Ober discloses an active dry sensor module but remains silent on the active electrode having an uneven surface capable of contacting a skin surface. Sherwin teaches the use of an uneven contacting surface (Figure 4 element 32) which is designed to penetrate past the hair and contact the skin. It would have been obvious to the skilled artisan at the time of invention to utilize an uneven contacting surface as taught by Sherwin with the active dry electrode of Silny in order to have better contact and by extension improved readings.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRIAN M. ANTISKAY whose telephone number is (571)270-5179. The examiner can normally be reached on M - R 7:00 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Linda Dvorak can be reached on 571-272-4764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BRIAN M ANTISKAY/
Examiner, Art Unit 3739

/Linda C Dvorak/
Supervisory Patent Examiner, Art Unit 3739